

What is claimed is:

1. A packet relay processing apparatus having
a network connecting device, wherein

5 the network connecting device comprises
a session managing unit managing a session,
and

a packet processing unit relaying a packet
based on session management made by said session
10 managing unit.

2. The packet relay processing apparatus
according to claim 1, wherein

the network connecting device further comprises
15 a routing table storing routing information
about a routing destination of a packet, and

a routing processing unit determining the
routing destination of the packet based on the routing
information at the start of a session; and

20 said packet processing unit outputs the packet to
the routing destination.

3. The packet relay processing apparatus
according to claim 2, further having a server, wherein

25 the server comprises

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a network controlling unit writing routing information to said routing table.

4. The packet relay processing apparatus
5 according to claim 1, further having a server, wherein:

the server comprises

an external session managing unit managing
a session;

said session managing unit transfers session
10 information about a session depending on a given
condition; and

said external session managing unit manages the
session based on received session information.

15 5. The packet relay processing apparatus
according to claim 1, wherein

the network connecting device further comprises

a process distributing unit, and

a plurality of service processing units;

20 said process distributing unit distributes a
packet to at least one of said plurality of service
processing units based on contents of a service for the
packet; and

a service processing unit to which the packet is
25 distributed performs a service process for the packet.

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6. The packet relay processing apparatus according to claim 5, further having a server, wherein:
the server comprises

5 an external service processing unit;
said process distributing unit transfers a packet
to the server depending on a given condition; and
said external service processing unit performs a
service process for a received packet.

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7. The packet relay processing apparatus according to claim 1, further having a server, wherein:
the server comprises

a packet details analyzing unit;
15 the network connecting device further comprises
a process distributing unit, and
a plurality of service processing units;
said process distributing unit transfers a packet
to said packet details analyzing unit depending on a
20 given condition; and

said packet details analyzing unit determines
contents of a service for the packet by analyzing the
packet and sets the determined contents of the service
in the network connecting device; and

25 the network connecting device processes the

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packet based on the contents of the determined service,
after the contents of the service are set.

8. The packet relay processing apparatus
5 according to claim 5, wherein

said service processing unit has a capability for
rewriting a header of a packet.

9. The packet relay processing apparatus
10 according to claim 5, wherein

said service processing unit has a capability for
discarding a packet.

10. The packet relay processing apparatus
15 according to claim 5, further having a server, wherein

said service processing unit has a capability for
determining a distribution destination of a load in
order to distribute a load on the server.

11. The packet relay processing apparatus
20 according to claim 5, wherein

the network connecting device further comprises
a session table storing session information
about a session, and

25 a policy table storing a policy which

describes a rule for executing a service for a packet;

said session managing unit searches said session table by using information included in the packet as a search key, upon receipt of the packet;

5 if corresponding session information is not registered to said session table as a result of the search, said session managing unit obtains a corresponding policy from said policy table by using the information included in the packet as a search key,
10 and writes session information to said session table based on the obtained policy; and

 if corresponding information is registered to said session table as a result of the search, said session managing unit manages the session information
15 stored in said session table based on a state of the session.

12. The packet relay processing apparatus according to claim 11, further having a server, wherein

20 the server comprises
 a service controlling unit writing a policy to said policy table.

13. The packet relay processing apparatus
25 according to claim 11, wherein

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the search key used when said session table is searched includes destination and source IP addresses, a protocol, destination and source port numbers, and an input interface of an IP packet.

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14. The packet relay processing apparatus according to claim 11, wherein

said session table stores as entries a search key, a session state, an applied service type, and information specific to the applied service type.

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15. The packet relay processing apparatus according to claim 11, wherein

said policy table stores as entries destination and source IP addresses, a protocol, destination and source port numbers, an applied service type, and information specific to the applied service type, and a priority of an IP packet.

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16. The packet relay processing apparatus according to claim 1, wherein

said session managing unit waits for a predetermined time period from a termination of a session, and deletes session information about the terminated session unless the terminated session is

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resumed while waiting for the predetermined time period.

17. The packet relay processing apparatus according to claim 1, wherein

5 the network connecting device further comprises
a counter for obtaining statistical
information about a packet.

18. The packet relay processing apparatus according to claim 11, wherein

a plurality of policies are divided into a
plurality of groups; and

the network connecting device sets whether or not
each policy is valid for each of the plurality of groups.

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19. The packet relay processing apparatus according to claim 12, wherein

the network connecting device transfers at least
part of a packet to the server in order to record a log
20 of the packet.

20. The packet relay processing apparatus according to claim 18, wherein

the part of the packet is a header of the packet.

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21. The packet relay processing apparatus according to claim 12, wherein:

the session information includes server transfer instruction information indicating whether or not to transfer a packet to the server; and

said process distributing unit determines whether or not to transfer the packet to the server based on the server transfer instruction information.

22. The packet relay processing apparatus according to claim 7, wherein

if a packet transferred to the server is an HTTP protocol GET packet, said packet details analyzing unit determines a service for the packet based on a URL (Uniform Resource Locator) included in the packet.

23. The packet relay processing apparatus according to claim 7, wherein

if a packet transferred to the server is an ACK packet for an FTP protocol PORT or PASV command, said packet details analyzing unit determines a service for the packet based on IP address and port number of a data connection corresponding to a session.

24. The packet relay processing apparatus

according to claim 7, wherein

said packet details analyzing unit makes a reply instead of a distribution destination server until the distribution destination of a load on the server is determined, if a process for distributing a load on the server is performed.

25. The packet relay processing apparatus according to claim 21, wherein

said packet details analyzing unit writes an applied service type for a packet, IP address and port number for translation, and sequence number and ACK number differences to said session table by analyzing the packet.

26. A network connecting device for use in a packet relay processing apparatus, comprising:

a session managing unit managing a session; and
a packet processing unit relaying a packet based on session management made by said session managing unit.

27. The network connecting device according to claim 26, further comprising

a server transferring unit transferring session

information about a session to a server comprised in the packet relay processing apparatus depending on a given condition, wherein

5 the server manages the session according to the transferred session information.

28. The network connecting device according to claim 26, wherein

10 the network connecting device further comprises
a process distributing unit, and
a plurality of service processing units;
said process distributing unit distributes a packet to at least one of the plurality of service processing units based on contents of a service for the
15 packet; and

a service processing unit to which the packet is distributed performs a service process for the packet.

29. The network connecting device according to
20 claim 28, wherein

said process distributing unit transfers a packet to the server comprised in the packet relay processing apparatus depending on a given condition, and makes the server perform the service process for the packet.

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30. The network connecting device according to claim 26, further comprising

a process distributing unit, and
a service processing unit, wherein

5 said process distributing unit transfers a packet
to the server comprised in the packet relay processing
apparatus depending on a given condition in order to
make the server determine a service for the packet; and
the service processing unit processes a packet of
10 the session based on contents of the service determined
by the server, after the service is determined by the
server.

31. A storage medium on which is recorded a
15 program for causing a computer comprised as a network
connecting device to execute a process, the process
comprising:

managing a session; and
relaying a packet based on session management.

20 32. The storage medium according to claim 31,
the process further comprising:

transferring session information about the
session to a server connected to the network connecting
25 device depending on a predetermined condition in order

to make the server manage the session.

33. The storage medium according to claim 31,
the process further comprising:

5 distributing a packet to a device or a program
segment, which performs a process corresponding to a
service, based on contents of a service for the packet.

34. The storage medium according to claim 31,
10 the process further comprising:

transferring a packet to a server connected to the
network connecting device depending on a given condition
in order to make the server perform a service process
for the packet.

15 35. The storage medium according to claim 31,
the process further comprising:

transferring a packet to a server connected to the
network connecting device in order to make the server
20 determine a service for the packet; and

processing the packet based on contents of a
determined service after the service for the packet is
determined by the server.

25 36. A storage medium on which is recorded a

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program for causing a server, which configures a packet relay processing apparatus relaying a packet, to execute a process, the process comprising

5 setting a policy describing a rule for executing a service for a packet in a network connecting device so that the network connecting device comprised in the packet relay processing apparatus processes the packet.

10 37. The storage medium according to claim 36, the process further comprising

 receiving a packet transferred from the network connecting device, and executing the service for the received packet.

15 38. A storage medium on which is recorded a program for causing a server, which configures a packet relay processing apparatus relaying a packet, to execute a process, the process comprising:

20 receiving a packet transferred from a network connecting device comprised in the packet relay processing apparatus;

 determining contents of a service for the packet by analyzing the packet; and

25 setting the contents of the determined service in the network connecting device in order to make the

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network connecting device process the packet based on the contents of the determined service.

39. A computer data signal embodied in a carrier wave and representing a program for causing a computer comprised as a network connecting device to execute a process, the process comprising:

managing a session; and

relaying a packet based on session management.

40. A computer data signal embodied in a carrier wave and representing a program for causing a server, which configures a packet relay processing apparatus relaying a packet, to execute a process, the process comprising

setting a policy describing a rule for executing a service for a packet in a network connecting device which configures the packet relay processing apparatus so that the network connecting device processes the packet.

41. A computer data signal embodied in a carrier wave and representing a program for causing a server, which configures a packet relay processing apparatus relaying a packet, to execute a process, the process

comprising:

receiving a packet transferred from a network connecting device which configures the packet relay processing apparatus;

5 determining contents of a service for the packet by analyzing the packet; and

10 setting the contents of the determined service in the network connecting device in order to make the network connecting device process the packet based on the contents of the determined service.

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